

TOP SECRET - SECURITY INFORMATION

What is claimed is:

1. A wireless data transmitting and/or receiving method comprising the steps of:
  - (a) when a length of a collection of data in an application layer is longer than a length of a payload of a protocol, dividing the collection of data into a plurality of protocol units, and transmitting the protocol units of data after adding at least one of length information and location information of the data divided into the protocol units; and
  - (b) determining whether or not a loss of data occurred, by referring to the information on the length and location of data divided into the protocol units in the step (a), and inserting blank data into a part corresponding to the lost data to re-form the entire collection of data.
2. The wireless data transmitting and/or receiving method of claim 1, wherein in the step(a), the protocol is supported by a lower layer.
3. A wireless data transmitting method comprising the steps of:
  - (a) when a length of a collection of data in a predetermined layer is longer than a length of a payload of a protocol, dividing the collection of data in the predetermined layer into a plurality of protocol units of data; and
  - 5 (b) transmitting the protocol units of data of the lower layer, after adding at least one of length information and location information of the data divided into the protocol units.

4. The wireless data transmitting method of claim 3, wherein a lower layer supports the protocol.

5. A wireless data receiving method wherein application data is divided into a plurality of predetermined protocol units, and a bit stream, in which at least one of length information and location information of data divided into the protocol units is added, is received, the wireless data receiving method comprising the steps of:

(a) receiving the predetermined protocol units in a predetermined sequence, and checking whether or not data is lost, by referring to the information on the length and location of data added to each of the predetermined protocol units; and

10 (b) when the result of checking in the step (a) indicates that data is lost from the protocol units, re-forming the collection of data by adding an amount of blank data equal to an amount of data lost, into a part from which the data was lost, and then transmitting the re-formed data to an upper layer.

6. The method of claim 1, wherein in the step (b), blank data is generated by referring to information on the length and location of data, which is added to a header of a preceding or succeeding protocol unit.

7. The method of claim 2, wherein in the step (b), blank data is generated by referring to information on the length and location of data, which is added to a header of a preceding or succeeding protocol unit.

8. The method of claim 5, wherein in the step (b), blank data is generated by referring to information on the length and location of data, which is added to a header of a preceding or succeeding protocol unit.

9. The method of claim 1, wherein in the step (b), when data in the first protocol unit of the plurality of protocol units is lost, not transmitting all of the protocol units to the upper layer.

10. The method of claim 2, wherein in the step (b), when data in the first protocol unit of the plurality of protocol units is lost, not transmitting all of the protocol units to the upper layer.

11. The method of claim 5, wherein in the step (b), when data in the first protocol unit of the plurality of protocol units is lost, not transmitting all of the protocol units to the upper layer.

12. The method of claim 1, wherein in the step (b), when data in the last divided protocol unit is lost, blank data of equal length is inserted into the preceding divided protocol data, and then the data and information on the changed length is transmitted.

13. The method of claim 2, wherein in the step (b), when data in the last divided protocol unit is lost, blank data of equal length is inserted into the preceding divided protocol data, and then the data and information on the changed length is transmitted.

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14. The method of claim 5, wherein in the step (b), when data in the last divided protocol unit is lost, blank data of equal length is inserted into the preceding divided protocol data, and then the data and information on the changed length is transmitted.

15. The method of claim 1, wherein in the step (b), when the loss of data from the protocol units is determined, signaling whether or not the blank data is inserted, to an upper layer.

16. The method of claim 2, wherein in the step (b), when the loss of data from the protocol units is determined, signaling whether or not the blank data is inserted, to an upper layer.

17. The method of claim 5, wherein in the step (b), when the loss of data from the protocol units is determined, signaling whether or not the blank data is inserted, to an upper layer.

18. The method of claim 1, wherein in the step (b), when the loss of data from the protocol units is determined, determining whether or not to transmit the data according to a characteristic of an application layer.

19. The method of claim 2, wherein in the step (b), when the loss of data from the protocol units is determined, determining whether or not to transmit the data according to a characteristic of an application layer.

20. The method of claim 5, wherein in the step (b), when the loss of data from the protocol units is determined, determining whether or not to transmit the data according to a characteristic of an application layer.

21. The method of claim 1, wherein the protocol is a radio link protocol (RLP).

22. The method of claim 2, wherein the protocol is a radio link protocol (RLP).

23. The method of claim 3, wherein the protocol is a radio link protocol (RLP).

24. The method of claim 4, wherein the protocol is a radio link protocol (RLP).

25. The method of claim 5, wherein the protocol is a radio link protocol (RLP).

26. The method of claim 6, wherein the protocol is a radio link protocol (RLP).

27. The method of claim 7, wherein the protocol is a radio link protocol (RLP).

28. The method of claim 8, wherein the protocol is a radio link protocol (RLP).

29. The method of claim 9, wherein the protocol is a radio link protocol (RLP).

30. The method of claim 10, wherein the protocol is a radio link protocol (RLP).

31. The method of claim 11 wherein the protocol is a radio link protocol (RLP).

32. The method of claim 12, wherein the protocol is a radio link protocol (RLP).

33. The method of claim 13, wherein the protocol is a radio link protocol (RLP).

34. The method of claim 14, wherein the protocol is a radio link protocol (RLP).

35. The method of claim 15, wherein the protocol is a radio link protocol (RLP).

36. The method of claim 16, wherein the protocol is a radio link protocol (RLP).

37. The method of claim 17, wherein the protocol is a radio link protocol (RLP).

38. An apparatus for transmitting and/or receiving wireless data, comprising:

a transmitting means for dividing a collection of data in an application layer into a plurality of protocol units, adding at least one of length information and location information of the data, to a header of each unit and transmitting the protocol units; and

5 a receiving means for determining whether or not data included in the protocol units is lost, by referring to the information on the length and location of the data added to the header of each of the predetermined protocol units

10 received from the transmitting means, and re-forming the collection of data by inserting blank data into any part from which data is lost.

39. The apparatus of claim 38, wherein the plurality of protocol units is supported by a lower layer.

40. The apparatus of claim 38, wherein the transmitting means comprises:

a data determining unit for comparing a length of the collection of data in the application layer with a size of a payload; and

5 a format processing unit for dividing the collection of data into a plurality of protocol units when the length of the application layer is longer than the length of the payload, and adding at least one of the information and the location information of the divided data to the header of each protocol unit.

41. The apparatus of claim 40, wherein the payload is of a format supported by a lower layer.

42. The apparatus of claim 38, wherein the receiving means comprises:

a packet extracting unit for extracting header information and payload from each protocol unit while transmitting data received from the transmitting

5 means to an upper layer; and

a data processing unit for determining whether or not data included in the protocol units is lost, by referring to information on the length and location of data added to the header, and re-forming the whole collection of data by inserting blank data into any part from which data is determined to be lost.

43. The apparatus of claim 42, wherein the data added to the header is extracted by the packet extracting unit.

44. The apparatus of claim 42, wherein the data processing unit signals whether or not blank data is inserted, to an upper layer.